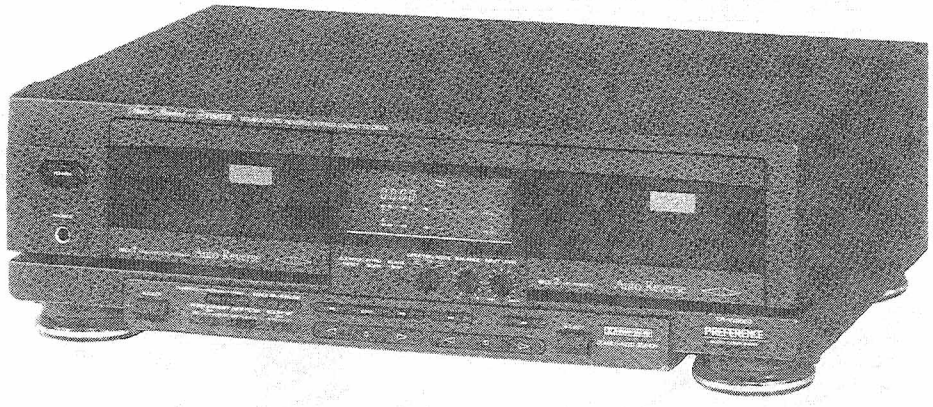
SERVICE MANUAL

FISHER

STEREO DOUBLE CASSETTE DECK

CR-W9060

(EUROPE)



142 500 08

SPECIFICATIONS

Motor ..... (2) DC Governor
Cassette Loading ..... (2) Front
Drive System ..... (4) Capstan
Number of Heads 3
Head Material ..... Hard Permalloy/Ferrite
Operation ..... (2) Full Logic Mechanism
Dubbing ..... Normal/High Speed
Wow & Flutter ..... 0.06% WRMS
Signal-to-Noise Ratio (CCIR Weighted)
- Dolby NR OFF 52dB
- Dolby B NR 62dB
- Dolby C NR 72dB

(Dolby is registered trademark of Dolby Laboratories.)

Erase Ratio 70dB
Channel Separation 40dB
Signal Crosstalk 70dB
Frequency Response 1-7/8 Ips.
- Normal Tape (±3dB) ..... 30Hz ~ 16kHz
- CrO_2 Equivalent Tape (±3dB) ..... 30Hz ~ 17kHz
- Metal Tape (±3dB) ..... 30Hz ~ 18kHz

Total Harmonic Distortion
- at 0 VU 0.7%

Fast Forward/Rewind Time
- (C-60) ..... 110sec.

Level Indicators ..... FL Meter (14x2)
Inputs (Sensitivity/Impedance) ..... (2) Line 100mV/50kΩ
Outputs (Level at 0 VU/Impedance) ..... (2) Line 500mV/2.2kΩ
Auto Tape Select ..... Normal, CrO_2, Metal

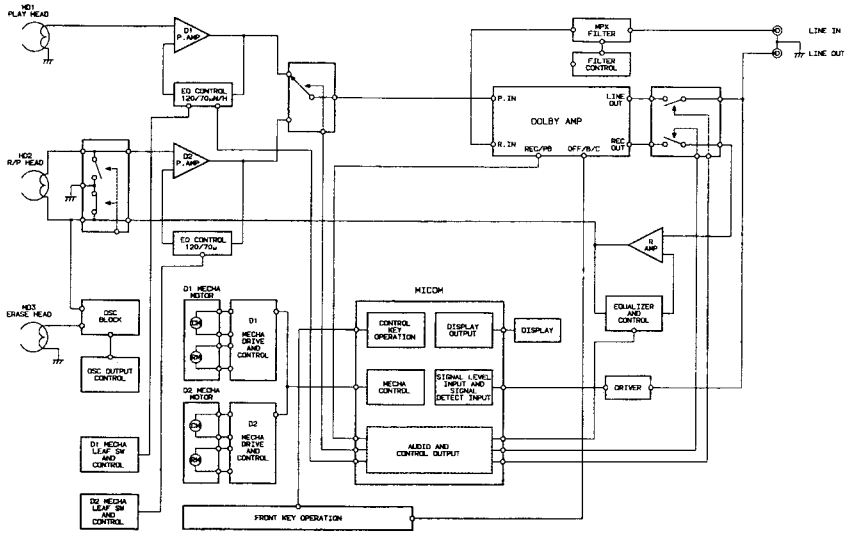
GENERAL

Power Requirements (50Hz) ..... AC 220V
Power Consumption 26Watts
Dimensions (WxHxD) ..... 440 x 130 x 285mm
Weight (approx) 5.5kg

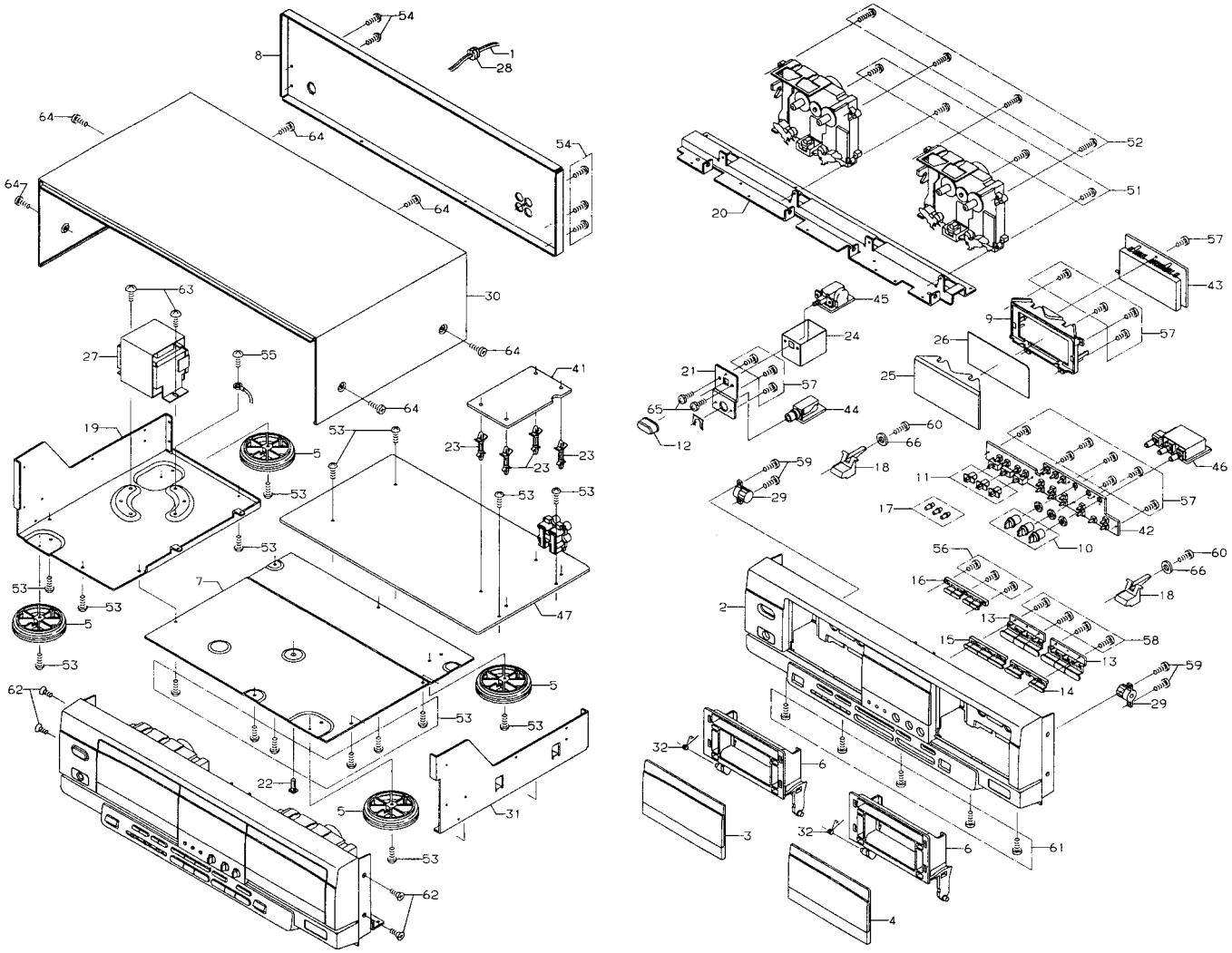
– Specifications and design are subject to change without notice. –

REFERENCE No. WM-570394

FUNCTIONAL BLOCK DIAGRAM



CABINET & CHASSIS EXPLODED VIEW



CABINET & CHASSIS PARTS LIST

Ref. No.		Part No.	Description	Q'ty
PACKAGE				
		620 201 7839	Outer Carton	1
		620 198 1568	Pad,Bottom	1
		620 198 1575	Pad,Top	1
		620 059 6596	Patching Sheet	1
		620 148 8012	Sheet Polyethylene	1
ACCESSORIES				
		620 204 4071	Assy,Poly Cover	1
		620 037 3500	RCA Cord 1000mm Black	1
		620 037 3517	RCA Cord 1000mm Gray	1
		620 057 8783	Bag Fan	1
		620 152 7452	Serial No. Sheet	1
		620 152 2624	Certificate Card	1
		620 204 4057	Instruction Manual	1
		620 190 0316	Connector 2P Assy	1
CABINET				
		620 017 3544	Connector 3P Assy [CN1]	1
		620 017 3735	Connector 6P Assy [CN2]	1
		620 017 4060	Connector 2P Assy [CN3]	1
		620 189 0389	Connector 8P Assy [CN8]	1
		620 189 0372	Connector 8P Assy [CN9]	1
		620 017 3742	Connector 6P Assy [CN10]	1
		620 017 4367	Connector 4P Assy [CN11]	1
		620 020 7690	Connector 3P Assy [CN13]	1
		620 017 4114	Connector 2P Assy [CN14]	1
		620 017 6392	Connector 1P Assy [W121]	1
		620 017 6392	Connector 1P Assy [W122]	1
		620 024 3261	Wire 3Parallel Assy [W123]	1
		620 125 8424	Wire Band	6
		620 152 7452	Serial No. Sheet	2
1	⚠	620 023 7550	Power Cord	1
2		620 201 7792	Assy,Cabinet,Front	1
3		620 200 1371	Assy,Panel,Lid,Left	1
4		620 200 1388	Assy,Panel,Lid,Right	1
5		620 198 6969	Assy,Foot	4
6		620 197 9671	Lid,Cassette	2
7		620 198 5344	Plate,Bottom	1
8		620 201 7822	Panel,Rear	1
9		620 198 1421	Panel,FL	1
10		620 198 1490	Knob,Rotary	3
11		620 198 1506	Knob,Slide	3
12		620 198 0622	Button,Power	1
13		620 198 1445	Button,Fast	1
14		620 198 1452	Button,REC	1
15		620 198 1469	Button,Pause	1
16		620 198 1476	Button,Small	3
17		620 198 1483	Button,Eject	2
18		620 198 1582	Button,Play,REV	2
19		620 198 1520	Chassis,Left	1
20		620 198 1537	Chassis,Front	1
21		620 198 1551	Bracket-E,Switch	1
22		620 199 8924	Post,Support,PCB	1
23		620 200 9988	Post,Support,PCB	4
24		620 201 6214	Shield,Power	1
25		620 198 1414	Filter,Clear	1
26		620 198 1513	Filter,FL	1
27	⚠	620 201 8607	Power Trans,SEV,20VA	1
28		620 053 2136	Bushing (MP4N-4)	1
29		620 083 1789	Gear Eject Assy	2
30		620 185 6156	Cover Top	1
31		620 185 6675	Chassis Right	1
32		620 186 1563	Spring Lid Right	2
41		620 199 8832	Assy,PCB,Dolby B-C	1
42		620 200 5737	Assy,PCB,Switch	1
43		620 200 5744	Assy,PCB,FL	1
44		620 200 5126	Assy,PCB,Head Phone	1
45		620 204 2558	Assy,PCB,Power,Switch	1
46		620 200 5751	Assy,PCB,Volume	1
47		620 204 2541	Assy,PCB,B-C	1
51		411 020 5904	SCR S-TPG BRZ 3X10	4
52		411 020 6208	SCR S-TPG BRZ 3X12	4
53		411 020 8004	SCR S-TPG BRZ 3X8	17
54		411 099 9803	SCR S-TPG BRZ 3X8	5
55		411 020 8806	SCR S-TPG BRZ 4X8	1
56		411 021 0601	SCR S-TPG BIN 2X5	3
57		411 021 0809	SCR S-TPG BIN 2X6	15
58		411 021 1202	SCR S-TPG BIN 2X8	4
59		411 021 3107	SCR S-TPG BIN 2.6X8	4
60		411 021 3206	SCR S-TPG BIN 2.6X8	2
61		411 021 6603	SCR S-TPG BIN 3X8	5
62		411 022 1904	SCR S-TPG FLT 2.6X6	4
63		411 024 8406	SCR S-TPG TRS 4X8	2
64		411 130 4507	SCR S-TPG BIN 3X8	6
65		411 003 8908	SCR PAN+SW 3X6	2
66		411 126 4405	WASHER Z 2.6X10X0.5	2

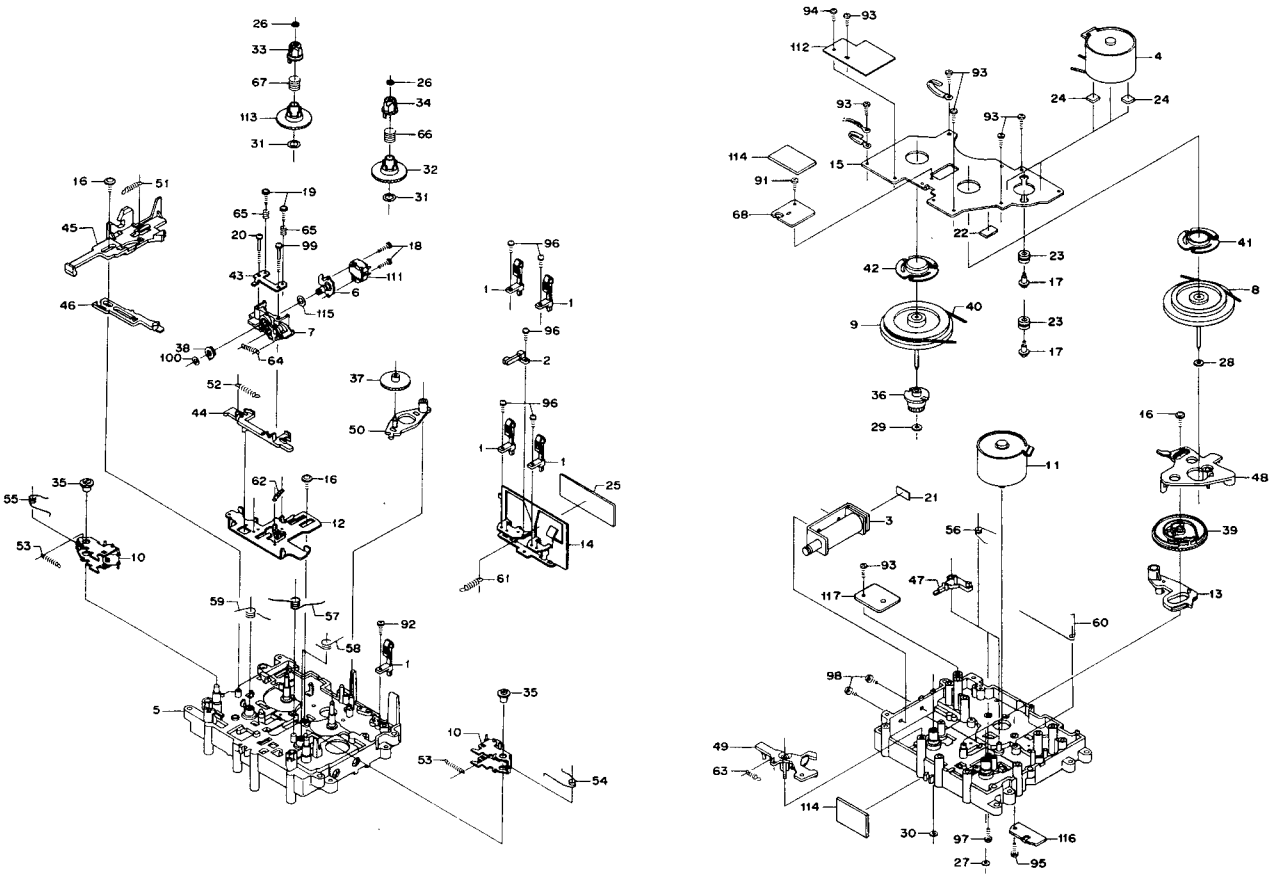
NOTES:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ⚠ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified with ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

MECHANISM EXPLODED VIEW

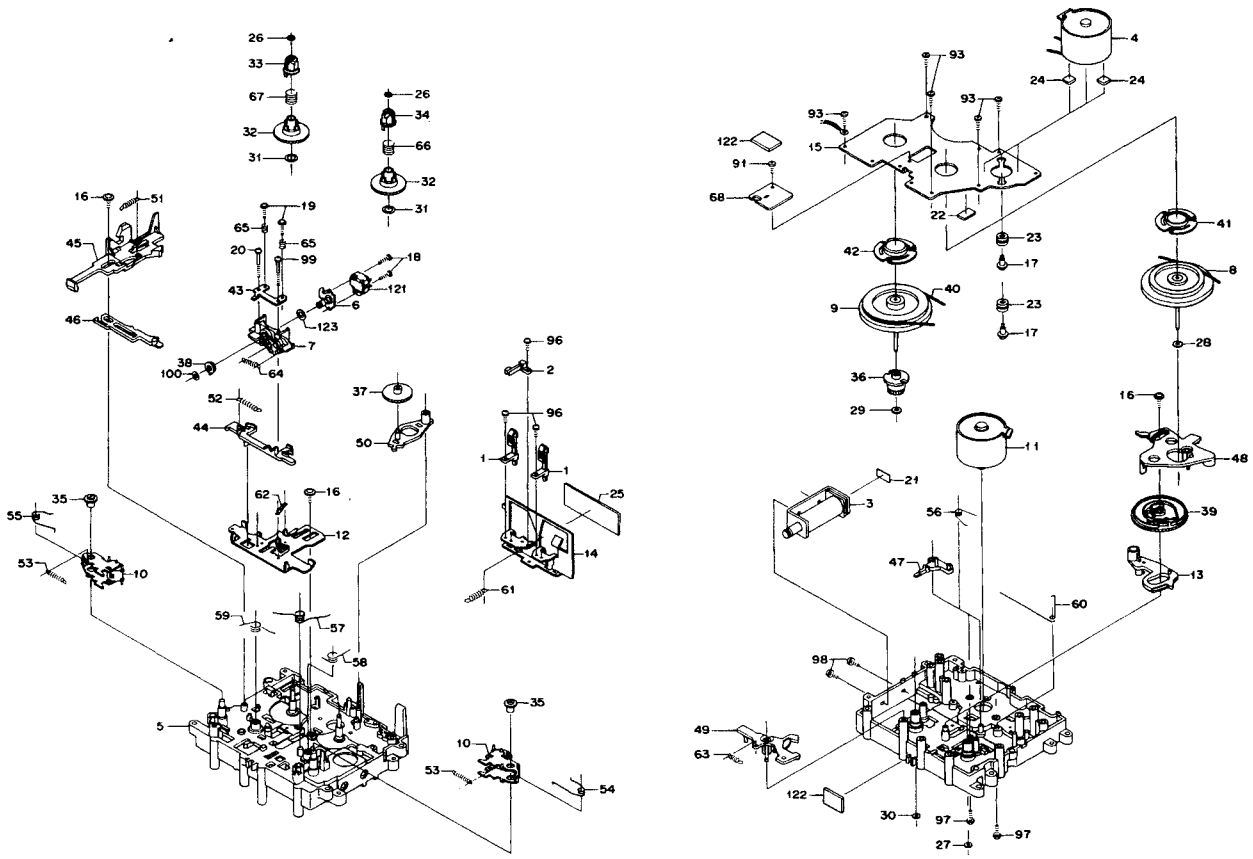


MECHANISM PARTS LIST

Ref. No.	Part No.	Description	Q'ty
DECK 1 DECK 2 SIMILAR PARTS			
	620 125 8110	Lug	2
1	620 016 9332	Leaf Switch (CASSETTE) [SW702,SW705]	2
1	620 016 9332	Leaf Switch (CrO_2) [SW703,SW706]	2
1	620 016 9332	Leaf Switch (METAL) [SW701]	1
1	620 016 9332	Leaf Switch (INTERLOCK) [SW704,SW709]	2
2	620 016 9349	Leaf Switch (STOP) [SW707,SW708]	2
3	620 029 3624	Plunger [PL1,PL2]	2
4	620 199 5572	Assy,Motor [M1,M2]	2
5	620 081 5857	Chassis Assy	2
6	620 082 2787	Plate Head Assy	2
7	620 082 2848	Head Base Assy	2
8	620 082 6969	Flywheel Assy	2
9	620 082 6990	Flywheel Assy	2
10	620 083 0539	Arm Pinchroller Assy	4
11	620 191 0483	Gear Motor Assy [M3,M4]	2
12	620 084 2471	Base Slide Assy	2
13	620 085 0902	Lever Assist B Assy	2
14	620 119 1332	Bracket Switch	2
15	620 119 1554	Support Flywheel	2
16	620 122 7277	Screw W/Washer +M2.0X6.0	6
17	620 122 9356	Screw Washer +M2.6X1.5	4
18	620 123 0550	Screw +PMS M1.6X6.0	4
19	620 123 0901	Screw Azimuth	4
20	620 123 1038	Screw C Switch M2X20	2
21	620 123 5920	Sheet	2
22	620 123 9072	Cushion	2
23	620 123 9942	Cushion Motor	4
24	620 124 5530	Cushion	4
25	620 124 5950	Cushion	2
26	620 125 1630	Washer M1.5X3.5X0.4	4
27	620 125 1982	Washer	2

Ref. No.	Part No.	Description	Q'ty
28	620 125 3450	Washer	2
29	620 125 3870	Washer	2
30	620 125 4761	Washer	2
31	620 125 4846	Washer	4
32	620 126 6252	Reel Plate	3
33	620 126 6269	Fin Reel Supply	2
34	620 126 6276	Fin Reel Take UP	2
35	620 126 8492	Bush	4
36	620 127 8118	Gear Flywheel	2
37	620 127 8132	Gear Idler	2
38	620 127 8156	Gear Head	2
39	620 127 8163	Gear Actuate	2
40	620 128 6533	Belt Drive	2
41	620 129 1247	Thrust Flywheel	2
42	620 129 1254	Thrust Flywheel FWD	2
43	620 130 6019	Plate Azimuth	2
44	620 130 6026	Plate Reverse	2
45	620 130 6033	Rod Eject	2
46	620 130 6040	Rod Eject Base	2
47	620 131 8982	Lever Lock Base	2
48	620 131 9002	Lever REV Select	2
49	620 131 9019	Lever Play Start	2
50	620 132 4914	Arm Idler	2
51	620 136 9489	Spring Tension Arm	2
52	620 136 9922	Spring Slide Base	2
53	620 137 4346	Spring Base Head	4
54	620 137 9051	Spring Arm Pinch Right	2
55	620 137 9068	Spring Arm Pinch Left	2
56	620 137 9082	Spring Lever REV Select	2
57	620 137 9099	Spring Lever Base	2
58	620 137 9358	Spring Earth FWD	2
59	620 137 9365	Spring Earth REV	2

MECHANISM EXPLODED VIEW (Continued)



MECHANISM PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
60	620 137 9426	Spring Earth Reel	2
61	620 138 9616	Spring Base	2
62	620 139 1077	Spring Lever Base	2
63	620 139 1121	Spring Lever Start	2
64	620 139 1220	Spring Gear Reverse	2
65	620 139 4139	Spring Azimuth	4
66	620 139 4207	Spring Reel FWD	2
67	620 139 4214	Spring Reel REV	2
68	620 011 1867	PCB Head	2
91	411 021 0809	SCR S-TPG BIN 2X6	2
92	411 021 1202	SCR S-TPG BIN 2X8	1
93	411 021 1806	SCR S-TPG BIN 2.6X10	12
94	411 021 2704	SCR S-TPG BIN 2.6X6	1
95	411 031 1605	SCR BIN 2.6X6	1
96	411 044 7205	SCR PAN+SW 2X4	8
97	411 003 8809	SCR PAN+SW 2.6X6	3
98	411 045 5408	SCR PAN+SW 3X5	4
99	411 106 5606	SCR PAN+SW+W 2X20	2
100	412 026 0207	SPECIAL WASHER	1

Ref. No.	Part No.	Description	Q'ty
DECK 1 ONLY			
111	620 187 4051	R/P/E Rotary Head [HD1]	1
112	620 052 9266	Cover Shield	1
113	620 082 8819	Reel Plate Assy	2
114	620 124 7350	Cushion	2
115	620 125 3849	Washer M4.2X7.0X0.13	1
116	620 199 8610	Assy,PCB,Photo,Detector	1
117	620 199 8825	PCB,Photo,Connect	1
DECK 2 ONLY			
121	620 023 6195	PB Rotary Head [HD2]	1
122	620 124 5103	Cushion	2
123	620 125 4280	Washer CUT	1

NOTES:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

CASSETTE DECK ADJUSTMENT

BEFORE ADJUSTMENT

If the tape surface which contacts the head, the capstan, and the pinch roller, etc., is stained, it will cause unstable running of the tape, wow and flutter, inperfect recording and erasing, deterioration of tonal quality, and the tape jam around the capstan, etc. Occasionally clean each part as follows;

1. Cut off power.
2. Open the cassette lid.
3. Wipe the head, the capstan, and the pinch roller with a cotton swab. If they are excessively stained, clean them with the swab soaked in absolute alcohol or cleaning liquid on the market.

MEASURING INSTRUMENTS REQUIRED

- Dualtrace Oscilloscope
- AC VTVM (AC voltmeter with high impedance)
- Dummy Load (47kΩ)
- Frequency Counter
- Signal Oscillator
- Test Tapes
  - ‡ 10kHz Test Tape (Example: TEAC MTT-114) for Azimuth Adjustment
  - ‡ 3kHz Test Tape (Example: TEAC MTT-111) for Tape Speed Adjustment
  - ‡ 1.5kHz Test Tape (Example: A.BEX TCW-211) for Tape Speed Adjustment
  - ‡ 400Hz Test Tape (Example: TEAC MTT-150) for Playback sensitivity Adjustment
- Test Tape for Recording and Playback Operations
  - ‡ Normal Tape (Example: TDK AC 223)

SWITCH POSITIONS

Unless especially indicated, set each switch as follows;
DOLBY NR Switch ..... OFF

NORMAL TAPE SPEED ADJUSTMENT

1. Connect the dummy load (47kΩ) and the frequency counter to the LINE OUT terminal L.
2. Load Deck 1 with a test tape (Example: TEAC MTT-111) and set it in the playback mode.
3. Adjust the potentiometer inside the capstan drive motor, so that the output becomes 3005Hz~3015Hz.
4. Perform the same adjustment for Deck 2.

HIGH SPEED TAPE SPEED ADJUSTMENT

1. Connect the dummy load (47kΩ) and the frequency counter to the LINE OUT terminal L.
2. Short-circuit TP1 and TP2
3. Load Deck 2 with a test tape (Example: A.BEX TCW-211) and set it in the playback mode.
4. Then adjust P302, so that the output becomes 3010Hz~3050Hz.
5. Load Deck 1 with the same test tape.
6. Adjust P301, so that the difference of Deck 2 frequency should become with in 0~−10Hz.

HEAD AZIMUTH ADJUSTMENT

1. Connect the dummy load (47kΩ) and the dualtrace oscilloscope to the LINE OUT terminals L and R.
2. Load Deck 1 with a test tape (Example: TEAC MTT-114) and set it in the playback mode.
3. Adjust the azimuth adjustment screw, so that the wave forms become maximum on the oscilloscope and the right wave form overlaps with the left one.
4. Perform the same adjustment for Deck 2.

PLAYBACK SENSITIVITY ADJUSTMENT

1. Connect the dummy load (47kΩ) and AC VTVM to the LINE OUT terminal L.
2. Load Deck 1 with a test tape (Example: TEAC MTT-150) and set it in the playback mode.
3. Adjust P103, so that the output of LINE OUT becomes 500mV.
4. Connect AC VTVM to the LINE OUT terminal R and adjust P104, so that the output becomes 500mV.
5. Adjust P101 (L) and P102 (R) following the same procedures as for Deck 1 adjustment.

BIAS ADJUSTMENT

1. Connect the low frequency oscillator to the L side of the LINE IN terminal, and the dummy load (47kΩ) and AC VTVM to the L side of the LINE OUT terminal.
2. Load Deck 1 with a normal tape (Example: TDK AC223) and set it in the recording mode.
3. Set the input level volume control to the maximum position and set the record balance volume control to the center position.
4. Feed the signals of 1kHz and 12.5kHz at 6mV (−44dBs) from the frequency generator into the unit. Then, record the signals on the tape.
5. Play back the recorded signals adjust P105, so that the difference in output of the 1kHz and 12.5kHz signals become ±1.0dB.
6. Adjust P106 for the R side by following the same procedures as described for the L side.

P.C.BOARD PARTS LIST

Ref. No.	Part No.	Description	Q'ty
ASSY,PCB,DOLBY B-C			
41	620 199 8832	Assy,PCB,Dolby B-C	1
	620 031 4763	Wire Wrap Terminal	2
CN901	620 021 5923	Plug 3P	1
CN902	620 021 6234	Plug 7P	1
CN903	620 021 6234	Plug 7P	1
L901	620 029 5925	Dolby Filter	1
L902	620 029 5925	Dolby Filter	1
L903	620 029 5673	Filter Skew	1
L904	620 029 5673	Filter Skew	1
IC901	409 004 9208	IC CX20187	1
Q901	405 001 0200	TR RN1202-TPE4	1
Q902	405 001 0200	TR RN1202-TPE4	1
Q903	405 001 0200	TR RN1202-TPE4	1
Q904	405 001 0200	TR RN1202-TPE4	1
C901	403 050 1308	ELECT 2.2U M 50V	1
C902	403 050 1308	ELECT 2.2U M 50V	1
C903	403 056 8608	POLYESTER 1000P K 50V	1
C904	403 056 8608	POLYESTER 1000P K 50V	1
C905	403 082 5107	POLYPRO 820P J 100V	1
C906	403 082 5107	POLYPRO 820P J 100V	1
C907	403 082 5107	POLYPRO 820P J 100V	1
C908	403 082 5107	POLYPRO 820P J 100V	1
C909	403 074 9007	CERAMIC 680P K 50V	1
C910	403 074 9007	CERAMIC 680P K 50V	1
C911	403 048 7701	ELECT 0.47U M 50V	1
C912	403 048 7701	ELECT 0.47U M 50V	1
C913	403 067 6204	MT-COMPO 0.15U J 50V	1
C914	403 067 6204	MT-COMPO 0.15U J 50V	1
C915	403 061 8709	POLYESTER 4700P K 50V	1
C916	403 061 8709	POLYESTER 4700P K 50V	1
C917	403 058 3700	POLYESTER 0.015U K 50V	1
C918	403 058 3700	POLYESTER 0.015U K 50V	1
C919	403 067 8208	MT-COMPO 0.068U J 50V	1
C920	403 067 8208	MT-COMPO 0.068U J 50V	1
C921	403 062 0108	POLYESTER 0.047U J 50V	1
C922	403 062 0108	POLYESTER 0.047U J 50V	1
C923	403 063 0503	POLYESTER 6800P K 50V	1
C924	403 063 0503	POLYESTER 6800P K 50V	1
C925	403 057 0908	POLYESTER 0.01U K 50V	1
C926	403 057 0908	POLYESTER 0.01U K 50V	1
C927	403 048 3208	ELECT 0.22U M 50V	1
C928	403 048 3208	ELECT 0.22U M 50V	1
C929	403 049 5508	ELECT 10U M 50V	1
C930	403 049 5508	ELECT 10U M 50V	1
C933	403 039 7901	ELECT 100U M 10V	1
C934	403 039 7901	ELECT 100U M 10V	1
R801	401 024 7707	CARBON 100K JA 1/6W	1
R802	401 024 7400	CARBON 10K JA 1/6W	1
R803	401 024 7707	CARBON 100K JA 1/6W	1
R804	401 024 7707	CARBON 100K JA 1/6W	1
R805	401 026 4605	CARBON 33K JA 1/6W	1
R806	401 026 4605	CARBON 33K JA 1/6W	1
R807	401 026 4605	CARBON 33K JA 1/6W	1
R901	401 027 4307	CARBON 6.2K JA 1/6W	1
R902	401 027 4307	CARBON 6.2K JA 1/6W	1
R903	401 027 7209	CARBON 7.5K JA 1/6W	1
R904	401 027 7209	CARBON 7.5K JA 1/6W	1
R905	401 027 5502	CARBON 6.8K JA 1/6W	1
R906	401 027 5502	CARBON 6.8K JA 1/6W	1
R907	401 026 8504	CARBON 430 JA 1/6W	1
R908	401 026 8504	CARBON 430 JA 1/6W	1
R909	401 026 7002	CARBON 3.9K JA 1/6W	1
R910	401 026 7002	CARBON 3.9K JA 1/6W	1
R911	401 026 1000	CARBON 2.7K JA 1/6W	1
R912	401 026 1000	CARBON 2.7K JA 1/6W	1
R913	401 027 5502	CARBON 6.8K JA 1/6W	1
R914	401 027 5502	CARBON 6.8K JA 1/6W	1
R915	401 027 5205	CARBON 680 JA 1/6W	1
R916	401 027 5205	CARBON 680 JA 1/6W	1
R917	401 027 2600	CARBON 5.6K JA 1/6W	1
R918	401 027 2600	CARBON 5.6K JA 1/6W	1
R919	401 024 7400	CARBON 10K JA 1/6W	1
R920	401 024 7400	CARBON 10K JA 1/6W	1
ASSY,PCB,SWITCH			
42	620 200 5737	Assy,PCB,Switch	1
CN5	620 200 6406	Assy,Connector-P,7P	1
SW1	620 197 2856	Switch,Tact	18

Ref. No.	Part No.	Description	Q'ty
S1	620 201 3206	Switch,Slide,1-1-3 (DOLBY)	1
S2	620 201 3206	Switch,Slide,1-1-3 (TIMER)	1
S3	620 201 3183	Switch,Slide,1-1-2 (MPX)	1
R501	401 025 1605	CARBON 1.5K JA 1/6W	1
R502	401 025 4200	CARBON 1.8K JA 1/6W	1
R503	401 026 1000	CARBON 2.7K JA 1/6W	1
R504	401 026 9907	CARBON 4.7K JA 1/6W	1
R505	401 027 8602	CARBON 8.2K JA 1/6W	1
R506	401 025 4606	CARBON 18K JA 1/6W	1
R507	401 025 1605	CARBON 1.5K JA 1/6W	1
R508	401 025 4200	CARBON 1.8K JA 1/6W	1
R511	401 025 1605	CARBON 1.5K JA 1/6W	1
R512	401 025 4200	CARBON 1.8K JA 1/6W	1
R513	401 026 1000	CARBON 2.7K JA 1/6W	1
R514	401 026 9907	CARBON 4.7K JA 1/6W	1
R515	401 027 8602	CARBON 8.2K JA 1/6W	1
R516	401 025 4606	CARBON 18K JA 1/6W	1
R517	401 025 1605	CARBON 1.5K JA 1/6W	1
R518	401 025 4200	CARBON 1.8K JA 1/6W	1
R519	401 026 1000	CARBON 2.7K JA 1/6W	1
R520	401 026 9907	CARBON 4.7K JA 1/6W	1
R521	401 025 4606	CARBON 18K JA 1/6W	1
R522	401 027 8602	CARBON 8.2K JA 1/6W	1
ASSY,PCB,FL			
43	620 200 5744	Assy,PCB,FL	1
	620 030 7888	Lamp (8V 105MA)	2
	620 198 4712	Spacer,FL	2
CN6	620 200 0794	Assy,Connector-S,10P	1
CN7	620 200 0800	Assy,Connector-S,12P	1
CN12	620 020 1513	Connector 3P Assy	1
FL1	620 198 6174	Fluorescent Tube,DK	1
ASSY,PCB,HEAD PHONE			
44	620 200 5126	Assy,PCB,Head Phone	1
	620 020 1087	Jack 3P	1
	620 020 8796	Connector 3P Assy	1
ASSY,PCB,POWER SWITCH			
45	620 204 2558	Assy,PCB,Power Switch	1
	620 053 7025	Cover Safety	1
C701 ⚠	620 006 6679	Capacitor 0.01MF400V	1
S901 ⚠	620 015 2341	Switch Push Power	1
ASSY,PCB,VOLUME			
46	620 200 5751	Assy,PCB,Volume	1
	620 200 5980	Wire,2P	1
	620 196 1669	Shield,Volume	1
CN4	620 200 6451	Assy,Connector-P,6P	1
S501	620 200 7953	Switch,Rotary,1-3	1
VR1	620 197 2818	VR,Rotary,2X50KA (VOLUME)	1
VR2	620 197 2825	VR,Rotary,1X200KW (BALANCE)	1
R509	401 026 1000	CARBON 2.7K JA 1/6W	1
R510	401 026 9907	CARBON 4.7K JA 1/6W	1
ASSY,PCB,B-C			
47	620 204 2541	Assy,PCB,B-C	1
	620 022 2587	EC Terminal 1P	7
	411 020 7700	SCR S-TPG BRZ 3X6	4
	620 031 4763	Wire Wrap Terminal	7
	620 125 8684	Staple	1
	620 053 8084	Plate Heat Sink	1
	620 053 9241	Plate Heat Sink	1
	620 053 9241	Plate Heat Sink	1
	620 053 9241	Plate Heat Sink	1
J1	620 201 8850	Jack,4P	1
or	620 017 2455	Pin Jack 4P	1
CN1	620 021 5923	Plug 3P	1
CN2	620 021 3950	Plug 6P	1
CN3	620 021 1970	Plug 2P	1
CN4	620 021 5954	Plug 6P	1
CN5	620 021 8399	Plug 7P	1
CN6	620 021 8344	Plug 10P	1
CN7	620 022 0132	Plug 12P	1
CN8	620 182 9020	Plug 8P	1
CN9	620 182 9020	Plug 8P	1
CN10	620 021 8610	Plug 6P	1
CN11	620 021 5930	Plug 4P	1
CN12	620 021 4025	Plug 3P	1

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
CN13	620 021 5923	Plug 3P	1
CN14	620 021 6548	Plug 2P	1
CN15	620 021 7620	Plug 2P	1
CN17	620 021 5923	Plug 3P	1
FHDR	620 017 2721	Fuse Clip	4
	620 201 3381	Label,Fuse	2
FUS1 ⚠	423 005 0507	FUSE 250V 1A	1
FUS2 ⚠	423 005 0507	FUSE 250V 1A	1
F101	620 201 3855	Inductor,Ferrite,105K	1
F102	620 201 3855	Inductor,Ferrite,105K	1
F107	620 200 1487	Inductor,Ferrite,105K	1
F108	620 200 1487	Inductor,Ferrite,105K	1
P101	620 182 6753	Potentiometer 330B	1
or	620 006 1995	Potentiometer 300B	1
P102	620 182 6753	Potentiometer 330B	1
or	620 006 1995	Potentiometer 300B	1
P103	620 182 6753	Potentiometer 330B	1
or	620 006 1995	Potentiometer 300B	1
P104	620 182 6753	Potentiometer 330B	1
or	620 006 1995	Potentiometer 300B	1
P105	620 006 1933	Potentiometer 100KB	1
P106	620 006 1933	Potentiometer 100KB	1
P301	620 006 1988	Potentiometer 200B	1
P302	620 006 1988	Potentiometer 200B	1
T301	620 028 8668	Coil OSC	1
W301	620 017 9089	Connector 1P Assy	1
W901	620 018 1631	Connector 3P Assy	1
W902	620 019 8738	Connector 7P Assy	1
W903	620 019 8738	Connector 7P Assy	1
X301	620 188 9390	Ceramic OSC 4MH	1
IC301	409 070 4909	IC NJM2068S-D	1
or	409 057 4601	IC UPC4570HA	1
IC302	409 070 4909	IC NJM2068S-D	1
or	409 057 4601	IC UPC4570HA	1
IC303	409 145 8405	IC UPC1330HA	1
IC304	409 030 5908	IC MC14066BCP	1
or	409 051 3501	IC TC4066BP	1
IC305	409 120 7508	IC BU4053B	1
or	409 051 3006	IC TC4053BP	1
IC307	409 030 5908	IC MC14066BCP	1
or	409 051 3501	IC TC4066BP	1
IC308	409 146 5403	IC CXA1198AP	1
IC309	409 003 9308	IC BU4051B	1
or	409 051 2603	IC TC4051BP	1
IC310	409 130 7505	IC BA4560	1
or	409 039 8306	IC NJM4560D	1
IC311	409 003 0404	IC BA6138	1
IC312	409 195 4709	IC M50941-309SP	1
IC313	409 115 8800	IC TA8121AN	1
IC314	409 115 8800	IC TA8121AN	1
IC315	409 003 8905	IC BU4001B	1
or	409 050 7807	IC TC4001BP	1
IC316	409 145 2809	IC NJM7805FA	1
IC317	409 196 7600	IC NJM7808FA	1
IC318	409 196 7709	IC NJM7908FA	1
DT105	405 075 8409	TR DTC144TS	1
DT106	405 075 8409	TR DTC144TS	1
DT301	405 001 0309	TR RN1203	1
DT302	405 001 1207	TR RN2203	1
DT303	405 000 6104	TR DTC144ES	1
DT304	405 001 1207	TR RN2203	1
DT305	405 000 6104	TR DTC144ES	1
DT306	405 035 1808	TR RN2205	1
DT307	405 037 0205	TR 2SC3860	1
DT308	405 035 1808	TR RN2205	1
DT309	405 037 0205	TR 2SC3860	1
DT310	405 035 1808	TR RN2205	1
DT311	405 037 0205	TR 2SC3860	1
DT312	405 000 6104	TR DTC144ES	1
DT313	405 000 6104	TR DTC144ES	1
DT314	405 001 0200	TR RN1202	1
DT316	405 001 1207	TR RN2203	1
DT317	405 000 6104	TR DTC144ES	1
DT318	405 001 1207	TR RN2203	1
DT319	405 075 8409	TR DTC144TS	1
DT320	405 001 1207	TR RN2203	1
DT321	405 075 8409	TR DTC144TS	1
DT322	405 001 1207	TR RN2203	1
DT323	405 035 1402	TR RN1205	1

Ref. No.	Part No.	Description	Q'ty
DT324	405 001 0309	TR RN1203	1
DT325	405 001 1207	TR RN2203	1
DT326	405 001 0309	TR RN1203	1
FE101	405 027 0505	TR 2SK246-GR	1
or	405 027 0604	TR 2SK246-Y	1
or	405 040 0605	TR 2SK222-C	1
or	405 026 9004	TR 2SK222-D	1
FE102	405 027 0505	TR 2SK246-GR	1
or	405 027 0604	TR 2SK246-Y	1
or	405 040 0605	TR 2SK222-C	1
or	405 026 9004	TR 2SK222-D	1
Q101	405 018 0200	TR 2SC3331-U	1
Q102	405 018 0200	TR 2SC3331-U	1
Q105	405 004 4502	TR 2SA608-F-NP-AA	1
Q106	405 004 4502	TR 2SA608-F-NP-AA	1
Q109	405 008 7004	TR 2SB808-G	1
Q110	405 008 7004	TR 2SB808-G	1
Q111	405 008 7004	TR 2SB808-G	1
Q112	405 008 7004	TR 2SB808-G	1
Q301	405 018 7209	TR 2SC3708-S	1
Q302	405 004 4502	TR 2SA608-F-NP-AA	1
Q303	405 008 6700	TR 2SB808-F	1
Q304	405 008 6700	TR 2SB808-F	1
Q305	405 019 2708	TR 2SC536-F-NP-AA	1
Q306	405 004 4502	TR 2SA608-F-NP-AA	1
Q307	405 095 1602	TR 2SD2061-E	1
or	405 095 1701	TR 2SD2061-F	1
D101	407 061 2200	DIODE 1SS254-TA (D1 EQ)	1
or	407 007 9904	DIODE GMA01-BT (D1 EQ)	1
D102	407 061 2200	DIODE 1SS254-TA (D1 EQ)	1
or	407 007 9904	DIODE GMA01-BT (D1 EQ)	1
D301	407 005 3805	DIODE DS442-BT	1
D302	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D303	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D304	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D305	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D306	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D307	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D309	407 061 2200	DIODE 1SS254-TA (REC H.S)	1
or	407 007 9904	DIODE GMA01-BT (REC H.S)	1
D310	407 005 3805	DIODE DS442-BT	1
D311	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D312	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D313	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D314	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D315	407 005 3805	DIODE DS442-BT	1
D316	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D317	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D318	407 005 3805	DIODE DS442-BT	1
D319	407 005 3805	DIODE DS442-BT	1
D320	407 005 3805	DIODE DS442-BT	1
D321	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D322	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D323	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D324	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D325	407 005 8602	DIODE ERA15-02	1
D326	407 049 9405	ZENER DIODE GZA20X	1
D327	407 050 4802	ZENER DIODE GZA5.1Y-BT	1
D328	407 005 8602	DIODE ERA15-02	1
D329	407 005 8602	DIODE ERA15-02	1
D330	407 005 8602	DIODE ERA15-02	1
D331	407 005 8602	DIODE ERA15-02	1
D332	407 049 6107	ZENER DIODE GZA11Z-BT	1

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
D333	407 005 8602	DIODE ERA15-02	1
D334	407 005 8602	DIODE ERA15-02	1
D335	407 005 3805	DIODE DS442-BT	1
D336	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D337	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D338	407 005 8602	DIODE ERA15-02	1
D340	407 124 8606	DIODE RB721Q	1
or	407 008 7206	DIODE MA700	1
D341	407 061 2200	DIODE 1SS254-TA (L.O MUT +)	1
or	407 007 9904	DIODE GMA01-BT (L.O MUT +)	1
D350	407 061 2200	DIODE 1SS254-TA (D1 REC EQ)	1
or	407 007 9904	DIODE GMA01-BT (D1 REC EQ)	1
C101	403 071 5903	CERAMIC 220P K 50V	1
C102	403 071 5903	CERAMIC 220P K 50V	1
C103	403 073 3006	CERAMIC 390P K 50V	1
C104	403 073 3006	CERAMIC 390P K 50V	1
C105	403 068 9105	CERAMIC 100P K 50V	1
C106	403 068 9105	CERAMIC 100P K 50V	1
C107	403 039 7901	ELECT 100U M 10V	1
C108	403 039 7901	ELECT 100U M 10V	1
C109	403 057 0908	POLYESTER 0.01U K 50V	1
C110	403 057 0908	POLYESTER 0.01U K 50V	1
C111	403 051 2007	ELECT 4.7U M 50V	1
C112	403 051 2007	ELECT 4.7U M 50V	1
C113	403 073 6502	CERAMIC 470P K 50V	1
C114	403 073 6502	CERAMIC 470P K 50V	1
C115	403 068 9105	CERAMIC 100P K 50V	1
C116	403 068 9105	CERAMIC 100P K 50V	1
C117	403 039 7901	ELECT 100U M 10V	1
C118	403 039 7901	ELECT 100U M 10V	1
C119	403 057 0908	POLYESTER 0.01U K 50V	1
C120	403 057 0908	POLYESTER 0.01U K 50V	1
C121	403 051 2007	ELECT 4.7U M 50V	1
C122	403 051 2007	ELECT 4.7U M 50V	1
C123	403 074 5801	CERAMIC 560P K 50V	1
C124	403 074 5801	CERAMIC 560P K 50V	1
C127	403 051 2007	ELECT 4.7U M 50V	1
C128	403 051 2007	ELECT 4.7U M 50V	1
C145	403 051 2007	ELECT 4.7U M 50V	1
C146	403 051 2007	ELECT 4.7U M 50V	1
C147	403 048 7602	ELECT 0.47U M 50V	1
C148	403 048 7602	ELECT 0.47U M 50V	1
C149	403 050 7706	ELECT 3.3U M 50V	1
C150	403 050 7706	ELECT 3.3U M 50V	1
C151	403 051 2007	ELECT 4.7U M 50V	1
C152	403 051 2007	ELECT 4.7U M 50V	1
C155	403 073 6502	CERAMIC 470P K 50V	1
C156	403 073 6502	CERAMIC 470P K 50V	1
C157	403 071 5903	CERAMIC 220P K 50V	1
C158	403 071 5903	CERAMIC 220P K 50V	1
C159	403 048 7602	ELECT 0.47U M 50V	1
C160	403 048 7602	ELECT 0.47U M 50V	1
C161	403 048 7602	ELECT 0.47U M 50V	1
C162	403 048 7602	ELECT 0.47U M 50V	1
C163	403 002 8508	CERAMIC 0.015U K 25V	1
C164	403 002 8508	CERAMIC 0.015U K 25V	1
C165	403 059 6601	POLYESTER 0.022U K 50V	1
C166	403 059 6601	POLYESTER 0.022U K 50V	1
C167	403 049 1609	ELECT 1U M 50V	1
C168	403 049 1609	ELECT 1U M 50V	1
C169	403 040 8508	ELECT 33U M 10V	1
C170	403 040 8508	ELECT 33U M 10V	1
C171	403 068 9105	CERAMIC 100P K 50V	1
C172	403 068 9105	CERAMIC 100P K 50V	1
C301	403 040 4807	ELECT 220U M 10V	1
C302	403 040 4807	ELECT 220U M 10V	1
C303	403 040 4807	ELECT 220U M 10V	1
C304	403 040 4807	ELECT 220U M 10V	1
C306	403 041 5704	ELECT 470U M 10V	1
C307	403 041 3304	ELECT 47U M 10V	1
C316	403 039 7901	ELECT 100U M 10V	1
C317	403 039 7901	ELECT 100U M 10V	1
C318	403 083 2105	POLYPRO 0.01U J 250V	1
C319	403 057 0908	POLYESTER 0.01U K 50V	1
C320	403 057 0908	POLYESTER 0.01U K 50V	1
C321	403 042 3600	ELECT 100U M 16V	1
C325	403 043 1100	ELECT 220U M 16V	1

Ref. No.	Part No.	Description	Q'ty
C326	403 039 2906	ELECT 47U M 6.3V	1
C328	403 041 0303	ELECT 330U M 10V	1
C330	403 071 5903	CERAMIC 220P K 50V	1
C331	403 004 4607	CERAMIC 0.068U K 25V	1
C332	403 071 5903	CERAMIC 220P K 50V	1
C333	403 004 4607	CERAMIC 0.068U K 25V	1
C334	403 051 2007	ELECT 4.7U M 50V	1
C335	403 039 7901	ELECT 100U M 10V	1
C336	403 051 2007	ELECT 4.7U M 50V	1
C337	403 039 7901	ELECT 100U M 10V	1
C338	403 041 0303	ELECT 330U M 10V	1
C339	403 041 3304	ELECT 47U M 10V	1
C340	403 068 9105	CERAMIC 100P K 50V	1
C341	403 049 1609	ELECT 1U M 50V	1
C342	403 072 2703	CERAMIC 0.022U Z 50V	1
C343	403 072 2703	CERAMIC 0.022U Z 50V	1
C344	403 072 2703	CERAMIC 0.022U Z 50V	1
C345	403 051 3905	ELECT 47U M 50V	1
C346	403 052 8107	ELECT 100U M 35V	1
C347	403 045 2907	ELECT 1000U M 25V	1
C348	404 012 4801	ELECT 2200U M 25V	1
C349	403 043 1100	ELECT 220U M 16V	1
C350	403 042 3501	ELECT 100U M 16V	1
C351	403 041 3304	ELECT 47U M 10V	1
C352	403 004 0500	CERAMIC 0.047U K 25V	1
C353	403 040 4807	ELECT 220U M 10V	1
C354	403 004 0500	CERAMIC 0.047U K 25V	1
C355	403 040 4807	ELECT 220U M 10V	1
C356	403 004 0500	CERAMIC 0.047U K 25V	1
C357	403 047 9607	ELECT 0.1U M 50V	1
C358	403 072 2703	CERAMIC 0.022U Z 50V	1
C361	403 051 2007	ELECT 4.7U M 50V	1
C362	403 051 2007	ELECT 4.7U M 50V	1
R101	401 024 7707	CARBON 100K JA 1/6W	1
R102	401 024 7707	CARBON 100K JA 1/6W	1
R103	401 024 7004	CARBON 1K JA 1/6W	1
R104	401 024 7004	CARBON 1K JA 1/6W	1
R105	401 027 5502	CARBON 6.8K JA 1/6W	1
R106	401 027 5502	CARBON 6.8K JA 1/6W	1
R107	401 026 3400	CARBON 300K JA 1/6W	1
R108	401 026 3400	CARBON 300K JA 1/6W	1
R109	401 024 9701	CARBON 12K JA 1/6W	1
R110	401 024 9701	CARBON 12K JA 1/6W	1
R111	401 025 4606	CARBON 18K JA 1/6W	1
R112	401 025 4606	CARBON 18K JA 1/6W	1
R113	401 024 9701	CARBON 12K JA 1/6W	1
R114	401 024 9701	CARBON 12K JA 1/6W	1
R117	401 027 2600	CARBON 5.6K JA 1/6W	1
R118	401 027 2600	CARBON 5.6K JA 1/6W	1
R119	401 024 7707	CARBON 100K JA 1/6W	1
R120	401 024 7707	CARBON 100K JA 1/6W	1
R121	401 024 7004	CARBON 1K JA 1/6W	1
R122	401 024 7004	CARBON 1K JA 1/6W	1
R123	401 026 3400	CARBON 300K JA 1/6W	1
R124	401 026 3400	CARBON 300K JA 1/6W	1
R125	401 024 9701	CARBON 12K JA 1/6W	1
R126	401 024 9701	CARBON 12K JA 1/6W	1
R127	401 025 4606	CARBON 18K JA 1/6W	1
R128	401 025 4606	CARBON 18K JA 1/6W	1
R133	401 027 2600	CARBON 5.6K JA 1/6W	1
R134	401 027 2600	CARBON 5.6K JA 1/6W	1
R137	401 026 7408	CARBON 39K JA 1/6W	1
R138	401 026 7408	CARBON 39K JA 1/6W	1
R139	401 025 4606	CARBON 18K JA 1/6W	1
R140	401 025 4606	CARBON 18K JA 1/6W	1
R141	401 025 7805	CARBON 2.2K JA 1/6W	1
R142	401 025 7805	CARBON 2.2K JA 1/6W	1
R143	401 025 0806	CARBON 13K JA 1/6W	1
R144	401 025 0806	CARBON 13K JA 1/6W	1
R145	401 026 1307	CARBON 27K JA 1/6W	1
R146	401 026 1307	CARBON 27K JA 1/6W	1
R157	401 026 7408	CARBON 39K JA 1/6W	1
R158	401 026 7408	CARBON 39K JA 1/6W	1
R159	401 023 2802	CARBON 8.2K JA 1/4W	1
R160	401 023 2802	CARBON 8.2K JA 1/4W	1
R161	401 027 5908	CARBON 68K JA 1/6W	1
R162	401 027 5908	CARBON 68K JA 1/6W	1
R163	401 026 9907	CARBON 4.7K JA 1/6W	1
R164	401 026 9907	CARBON 4.7K JA 1/6W	1

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description		Q'ty
R165	401 014 5201	CARBON	15K JA 1/4W	1
R166	401 014 5201	CARBON	15K JA 1/4W	1
R167	401 027 0309	CARBON	47K JA 1/6W	1
R168	401 027 0309	CARBON	47K JA 1/6W	1
R169	401 024 7004	CARBON	1K JA 1/6W	1
R170	401 024 7004	CARBON	1K JA 1/6W	1
R171	401 025 7102	CARBON	22 JA 1/6W	1
R172	401 025 7102	CARBON	22 JA 1/6W	1
R173	401 026 4902	CARBON	330K JA 1/6W	1
R174	401 026 4902	CARBON	330K JA 1/6W	1
R181	401 024 7004	CARBON	1K JA 1/6W	1
R182	401 024 7004	CARBON	1K JA 1/6W	1
R185	401 024 6700	CARBON	100 JA 1/6W	1
R186	401 024 6700	CARBON	100 JA 1/6W	1
R187	401 024 6700	CARBON	100 JA 1/6W	1
R188	401 024 6700	CARBON	100 JA 1/6W	1
R189	401 017 8605	CARBON	300 JA 1/4W	1
R190	401 017 8605	CARBON	300 JA 1/4W	1
R191	401 013 0900	CARBON	110 JA 1/4W	1
R192	401 013 0900	CARBON	110 JA 1/4W	1
R193	401 024 6700	CARBON	100 JA 1/6W	1
R194	401 024 6700	CARBON	100 JA 1/6W	1
R201	401 025 6204	CARBON	2K JA 1/6W	1
R202	401 015 9505	CARBON	2K JA 1/4W	1
R301	401 024 7004	CARBON	1K JA 1/6W	1
R302	401 024 7004	CARBON	1K JA 1/6W	1
R303	401 024 7004	CARBON	1K JA 1/6W	1
R304	401 024 7004	CARBON	1K JA 1/6W	1
R305	401 016 4806	CARBON	22K JA 1/4W	1
R313	401 016 8507	CARBON	24K JA 1/4W	1
R314	401 021 0701	CARBON	56 JA 1/4W	1
R315	401 021 0701	CARBON	56 JA 1/4W	1
R316	401 018 4903	CARBON	33K JA 1/4W	1
R317	401 024 7400	CARBON	10K JA 1/6W	1
R318	401 026 4605	CARBON	33K JA 1/6W	1
R319	401 024 7400	CARBON	10K JA 1/6W	1
R320	401 027 4604	CARBON	62K JA 1/6W	1
R321	401 027 9005	CARBON	82K JA 1/6W	1
R322	401 027 7407	CARBON	75K JA 1/6W	1
R323	401 024 7707	CARBON	100K JA 1/6W	1
R324	401 027 3003	CARBON	56K JA 1/6W	1
R325	401 027 9005	CARBON	82K JA 1/6W	1
R326	401 024 7707	CARBON	100K JA 1/6W	1
R327	401 026 4605	CARBON	33K JA 1/6W	1
R328	401 025 2305	CARBON	150K JA 1/6W	1
R329	401 028 0308	CARBON	91K JA 1/6W	1
R330	401 024 7707	CARBON	100K JA 1/6W	1
R331	401 027 1801	CARBON	51K JA 1/6W	1
R332	401 026 6104	CARBON	36K JA 1/6W	1
R333	401 025 0004	CARBON	120K JA 1/6W	1
R334	401 026 1307	CARBON	27K JA 1/6W	1
R335	401 027 5908	CARBON	68K JA 1/6W	1
R336	401 026 3202	CARBON	30K JA 1/6W	1
R337	401 027 4604	CARBON	62K JA 1/6W	1
R338	401 026 4605	CARBON	33K JA 1/6W	1
R339	401 026 1307	CARBON	27K JA 1/6W	1
R340	401 026 1307	CARBON	27K JA 1/6W	1
R341	401 026 4605	CARBON	33K JA 1/6W	1
R342	401 027 0309	CARBON	47K JA 1/6W	1
R343	401 027 0309	CARBON	47K JA 1/6W	1
R344	401 024 7707	CARBON	100K JA 1/6W	1
R345	401 025 2305	CARBON	150K JA 1/6W	1
R346	401 026 7408	CARBON	39K JA 1/6W	1
R347	401 025 8703	CARBON	220K JA 1/6W	1
R348	401 024 7707	CARBON	100K JA 1/6W	1
R349	401 025 8703	CARBON	220K JA 1/6W	1
R350	401 027 3003	CARBON	56K JA 1/6W	1
R351	401 026 4605	CARBON	33K JA 1/6W	1
R352	401 027 0309	CARBON	47K JA 1/6W	1
R353	401 027 1801	CARBON	51K JA 1/6W	1
R354	401 027 7407	CARBON	75K JA 1/6W	1
R355	401 027 3003	CARBON	56K JA 1/6W	1
R356	401 025 7102	CARBON	22 JA 1/6W	1
R357	401 024 7400	CARBON	10K JA 1/6W	1
R358	401 024 6403	CARBON	10 JA 1/6W	1
R359	401 027 0309	CARBON	47K JA 1/6W	1
R360	401 022 9406	CARBON	8.2 JA 1/4W	1
R361	401 024 7400	CARBON	10K JA 1/6W	1
R362	401 024 7400	CARBON	10K JA 1/6W	1

Ref. No.	Part No.	Description		Q'ty
R363	401 015 8904	CARBON	200 JA 1/4W	1
R364	401 021 0701	CARBON	56 JA 1/4W	1
R365	401 015 1608	CARBON	180 JA 1/4W	1
R366	401 025 1100	CARBON	15 JA 1/6W	1
R369	401 018 2800	CARBON	330 JA 1/4W	1
R370	401 027 5502	CARBON	6.8K JA 1/6W	1
R371	401 026 7408	CARBON	39K JA 1/6W	1
R372	401 026 4605	CARBON	33K JA 1/6W	1
R374	401 024 7707	CARBON	100K JA 1/6W	1
R375	401 027 2600	CARBON	5.6K JA 1/6W	1
R376	401 024 7400	CARBON	10K JA 1/6W	1
R377	401 025 8208	CARBON	22K JA 1/6W	1
R378	401 027 3003	CARBON	56K JA 1/6W	1
R379	401 027 2600	CARBON	5.6K JA 1/6W	1
R380	401 027 0309	CARBON	47K JA 1/6W	1
R381	401 024 7004	CARBON	1K JA 1/6W	1
R382	401 025 2305	CARBON	150K JA 1/6W	1
R383	401 027 0309	CARBON	47K JA 1/6W	1
R384	401 024 7004	CARBON	1K JA 1/6W	1
R385	401 025 2305	CARBON	150K JA 1/6W	1
R386	401 026 3707	CARBON	33 JA 1/6W	1
R387	401 024 6700	CARBON	100 JA 1/6W	1
R388	401 027 2105	CARBON	56 JA 1/6W	1
R389	401 025 1902	CARBON	15K JA 1/6W	1
R390	401 027 2600	CARBON	5.6K JA 1/6W	1
R391	401 104 0802	MT-FILM	620 JV 1/8W	1
R392	401 026 6609	CARBON	390 JA 1/6W	1
R393	401 024 6700	CARBON	100 JA 1/6W	1
R394	401 026 3707	CARBON	33 JA 1/6W	1
R395	401 024 6700	CARBON	100 JA 1/6W	1
R396	401 027 2105	CARBON	56 JA 1/6W	1
R397	401 025 1902	CARBON	15K JA 1/6W	1
R398	401 027 2600	CARBON	5.6K JA 1/6W	1
R399	401 104 0802	MT-FILM	620 JV 1/8W	1
R601	401 026 6609	CARBON	390 JA 1/6W	1
R602	401 024 6700	CARBON	100 JA 1/6W	1
R603	401 024 7400	CARBON	10K JA 1/6W	1
R604	401 014 4105	CARBON	1.5K JA 1/4W	1
R605	401 026 1000	CARBON	2.7K JA 1/6W	1
R606	401 015 2704	CARBON	1.8K JA 1/4W	1
R608	401 024 7400	CARBON	10K JA 1/6W	1
R609	401 024 7400	CARBON	10K JA 1/6W	1
R610	401 024 7400	CARBON	10K JA 1/6W	1
R611	401 024 7400	CARBON	10K JA 1/6W	1
R612	401 024 7400	CARBON	10K JA 1/6W	1
R613	401 016 2604	CARBON	220 JA 1/4W	1
R615	401 026 4605	CARBON	33K JA 1/6W	1
R616	401 016 4806	CARBON	22K JA 1/4W	1
R618	401 016 4806	CARBON	22K JA 1/4W	1
R619	401 027 0309	CARBON	47K JA 1/6W	1
R620	401 024 7707	CARBON	100K JA 1/6W	1
R621	401 027 0309	CARBON	47K JA 1/6W	1
R622	401 025 1605	CARBON	1.5K JA 1/6W	1
R623	401 026 1000	CARBON	2.7K JA 1/6W	1
R624	401 025 4200	CARBON	1.8K JA 1/6W	1
R625	401 024 7400	CARBON	10K JA 1/6W	1
R626	401 027 2600	CARBON	5.6K JA 1/6W	1
R627	401 021 3009	CARBON	5.6K JA 1/4W	1
R628	401 027 0309	CARBON	47K JA 1/6W	1
R630	401 027 0309	CARBON	47K JA 1/6W	1
R631	401 026 0607	CARBON	270 JA 1/6W	1
R632	401 024 7707	CARBON	100K JA 1/6W	1
R633	401 024 7004	CARBON	1K JA 1/6W	1
R634	401 024 8001	CARBON	1M JA 1/6W	1
R635	401 025 8208	CARBON	22K JA 1/6W	1
R636	401 025 8208	CARBON	22K JA 1/6W	1
R637	401 016 2604	CARBON	220 JA 1/4W	1
R638	402 051 7005	FUSIBLE RES	8.2 JA 1/2W	1
R639	402 051 7005	FUSIBLE RES	8.2 JA 1/2W	1
R640	402 034 4700	FUSIBLE RES	0.47 J- 1/2W	1
R641	402 034 4700	FUSIBLE RES	0.47 J- 1/2W	1
R643	401 025 7805	CARBON	2.2K JA 1/6W	1
R644	401 026 9907	CARBON	4.7K JA 1/6W	1
R645	401 020 0801	CARBON	470 JA 1/4W	1
R646	401 024 7707	CARBON	100K JA 1/6W	1
R647	401 024 7707	CARBON	100K JA 1/6W	1
R648	401 024 7707	CARBON	100K JA 1/6W	1
R649	401 024 7707	CARBON	100K JA 1/6W	1
R650	401 024 7707	CARBON	100K JA 1/6W	1

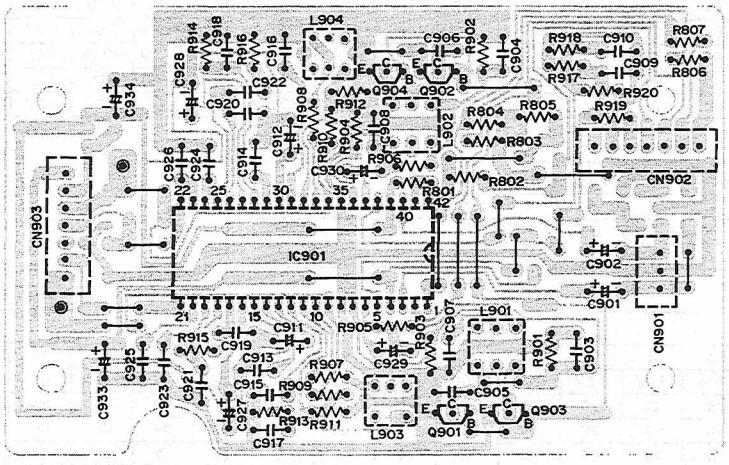
IC & TRANSISTOR DC VOLTAGES (Continued)

IC PIN NUMBERS DC VOLTAGES											
Ref. No.	DEVICE	1	2	3	4	5	6	7	8	9	10
IC316	NJM7805FA	5.0V	0V	11.3V	–	–	–	–	–	–	–
IC317	NJM7808FA	7.9V	0V	15.8V	–	–	–	–	–	–	–
IC318	NJM7908FA	−7.7V	−15.5V	0V	–	–	–	–	–	–	–

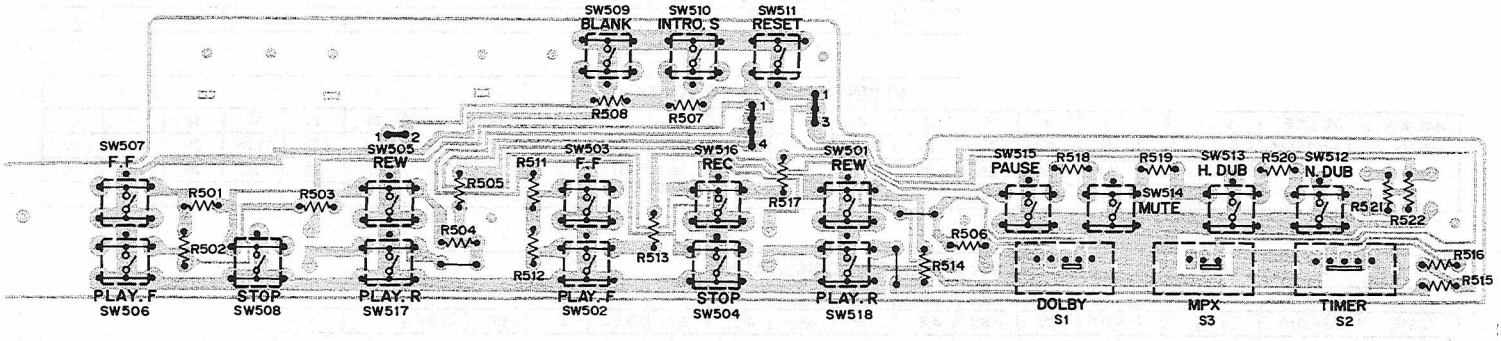
IC PIN NUMBERS DC VOLTAGES																				
Ref. No.	DEVICE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
IC901	CX20187	0V	3.8V	0V	8.0V	0V	0V	0V	0V	0V	0V	0V	0V	−7.4V	−7.5V	0V	−7.4V	−7.5V	0V	0V	0V
		21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
		0V	0V	0V	0V	0V	−7.5V	−7.4V	0V	−7.5V	−7.4V	0V	0V	0V	0V	0V	0V	0V	0V	−7.8V	0V
		41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
		−6.6V	3.5V	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

TRANSISTOR DC VOLTAGES (* = Rec Mode)									
Ref. No.	DEVICE	B	C	E	Ref. No.	DEVICE	B	C	E
Q301*	2SC3708	7.4V	0.5V	7.6V	Q305	2SC536	−7.7V	0V	−7.6V
Q302	2SA608	7.9V	0V	7.6V	Q307	2SD2061	11.9V	17.9V	11.3V

DOLBY B-C P.C.BOARD
(BOTTOM VIEW)



SWITCH P.C.BOARD
(BOTTOM VIEW)



P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
R651	401 026 7002	CARBON 3.9K JA 1/6W	1
R652	401 024 7004	CARBON 1K JA 1/6W	1
R655	401 024 7004	CARBON 1K JA 1/6W	1
R656	401 024 7004	CARBON 1K JA 1/6W	1
R657	401 026 9600	CARBON 470 JA 1/6W	1
R658	401 026 9600	CARBON 470 JA 1/6W	1
R659	401 024 7004	CARBON 1K JA 1/6W	1
R660	401 012 5708	CARBON 1K JA 1/4W	1

NOTES:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

Ref. No.	Part No.	Description	Q'ty

PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ⚠ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified with ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual. Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

IC & TRANSISTOR DC VOLTAGES

IC PIN NUMBERS DC VOLTAGES

Ref. No.	DEVICE	1	2	3	4	5	6	7	8	9	10
IC301	NJM2068S	3.8V	0V	0V	0V	−3.7V	0V	0V	0V	3.8V	–
IC302	NJM2068S	3.8V	0V	0V	0V	−3.7V	0V	0V	0V	3.8V	–
IC303	UPC1330HA	0V	0V	0V	0V	0V	7.2V	0V	0V	0V	–

IC PIN NUMBERS DC VOLTAGES

Ref. No.	DEVICE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC304	MC14066B	0V	0V	0V	0V	−7.7V	−7.7V	−7.7V	0V	0V	0V	0V	7.9V	7.9V	7.9V	–	–
IC305	BU4053B	0V	0V	0V	0V	0V	0V	−7.7V	0V	7.9V	7.8V	7.8V	−7.7V	7.9V	7.9V	0V	7.9V
IC307	MC14066	0V	0V	0V	0V	−7.3V	−7.3V	−7.8V	0V	0V	0V	0V	−7.3V	−7.3V	7.9V	–	–
IC308	CXA1198AP	1.2V	1.2V	1.3V	0V	−6.9V	0V	0V	0.6V	0.7V	0V	0V	6.9V	1.2V	1.2V	1.2V	1.2V
IC309	BU4051B	0V	0V	0V	1.2V	0V	0V	0V	0.6V	7.6V	7.7V	0V	1.2V	1.2V	1.2V	1.2V	7.9V

IC PIN NUMBERS DC VOLTAGES

Ref. No.	DEVICE	1	2	3	4	5	6	7	8	9	10
IC310	BA4560	0V	0V	0V	−5.7V	0V	0V	0V	5.8V	–	–
IC311	BA6138	0.5V	0.1V	0.7V	2.0V	0V	2.0V	0.7V	0.1V	10.0V	–

IC PIN NUMBERS DC VOLTAGES

Ref. No.	DEVICE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
IC312	M50941	5.0V	0.1V	0.1V	5.0V	4.5V	5.0V	5.0V	5.0V	5.0V	0V	0V	0V	0V	0V	0V	0V	4.9V	0V	0V	0V
		21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
		0V	0V	0V	5.0V	0V	0V	5.0V	2.1V	0.9V	0V	4.8V	0V	0V	0V	0V	5.0V	0V	22.0V	21.8V	12.6V
		41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
		12.6V	12.6V	12.6V	12.6V	12.6V	21.8V	13.1V	13.1V	13.1V	13.1V	13.1V	13.1V	18.1V	17.8V	17.8V	18.0V	18.0V	21.7V	21.7V	4.9V
		61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
		21.7V	21.7V	5.0V	5.0V	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

IC PIN NUMBERS DC VOLTAGES

Ref. No.	DEVICE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
IC313	TA8121AM	0V	0V	0V	0V	0V	0V	11.3V	11.3V	10.3V	0V	0V	0V	0V	0V	5.3V	0.6V	11.3V	0V	10.1V	0V
		21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
		1.5V	0V	1.8V	6.2V	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

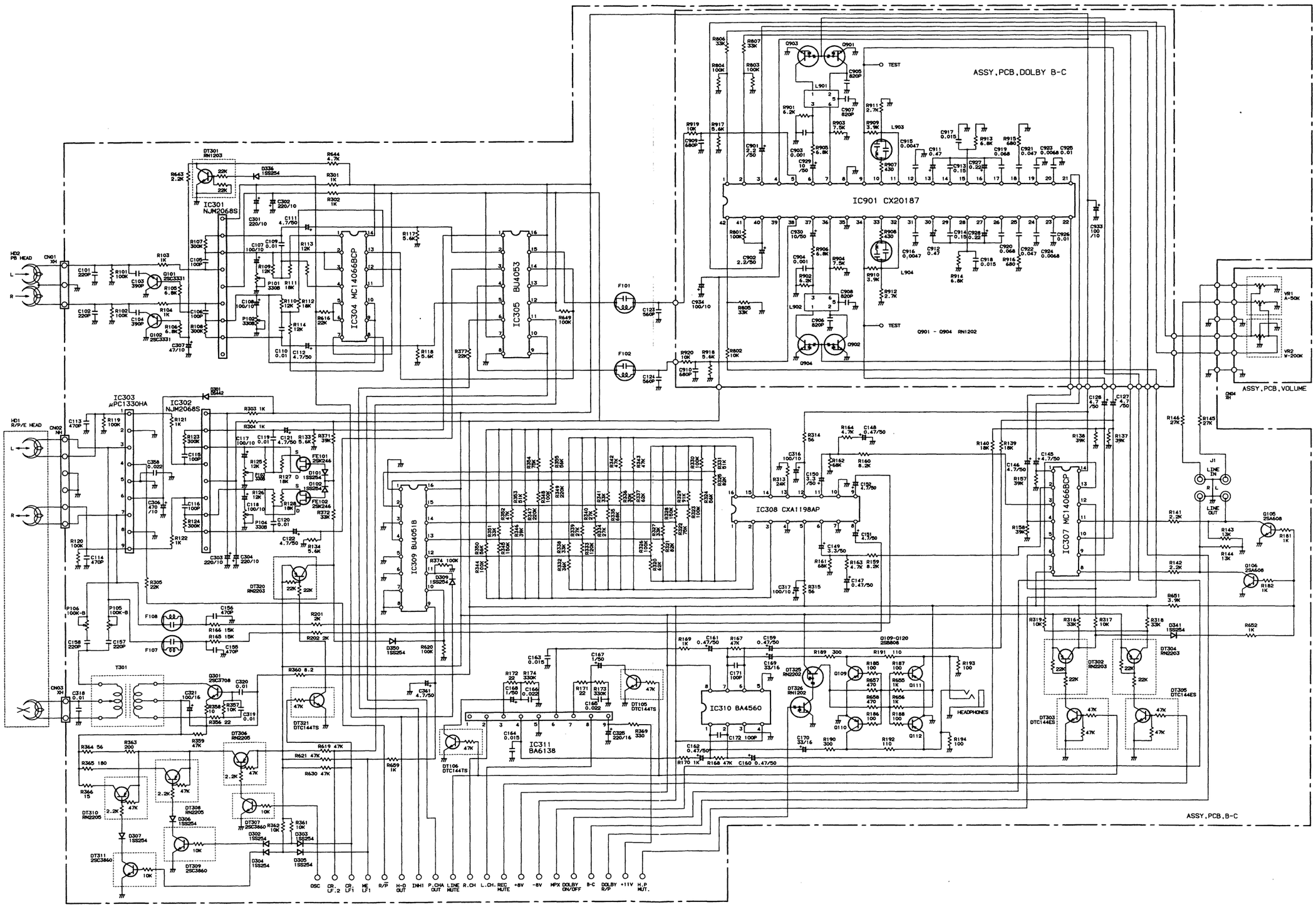
IC PIN NUMBERS DC VOLTAGES

Ref. No.	DEVICE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
IC314	TA8121AM	0V	0V	0V	0V	0V	0V	11.3V	11.3V	10.3V	0V	0V	0.5V	0V	0.2V	0V	0.6V	11.3V	0V	10.1V	0V
		21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
		0V	0V	1.8V	6.2V	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

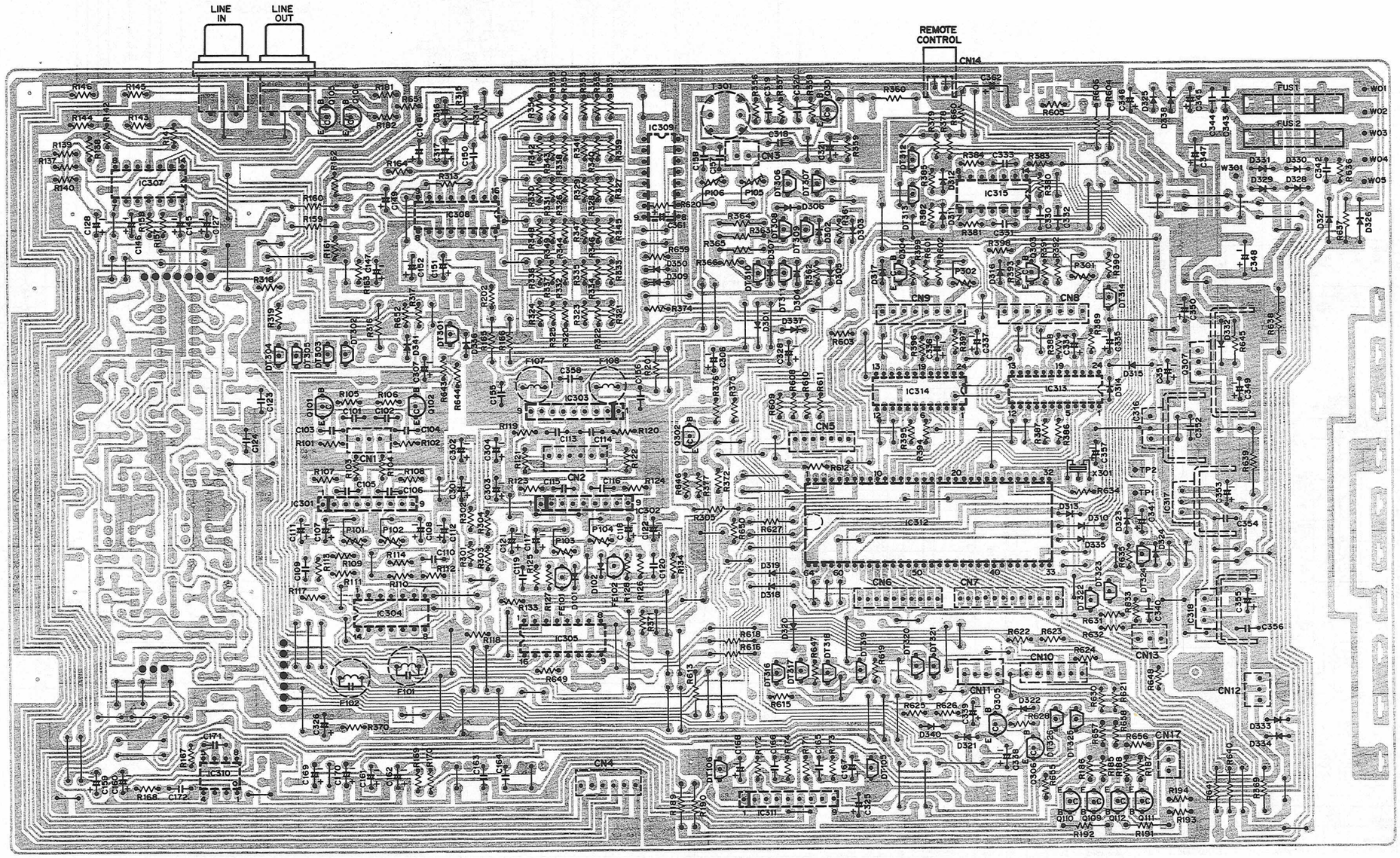
IC PIN NUMBERS DC VOLTAGES

Ref. No.	DEVICE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC315	BU4001B	0V	0V	5.0V	0V	4.8V	4.8V	0V	4.8V	4.8V	0V	5.0V	0V	0V	5.0V	–	–

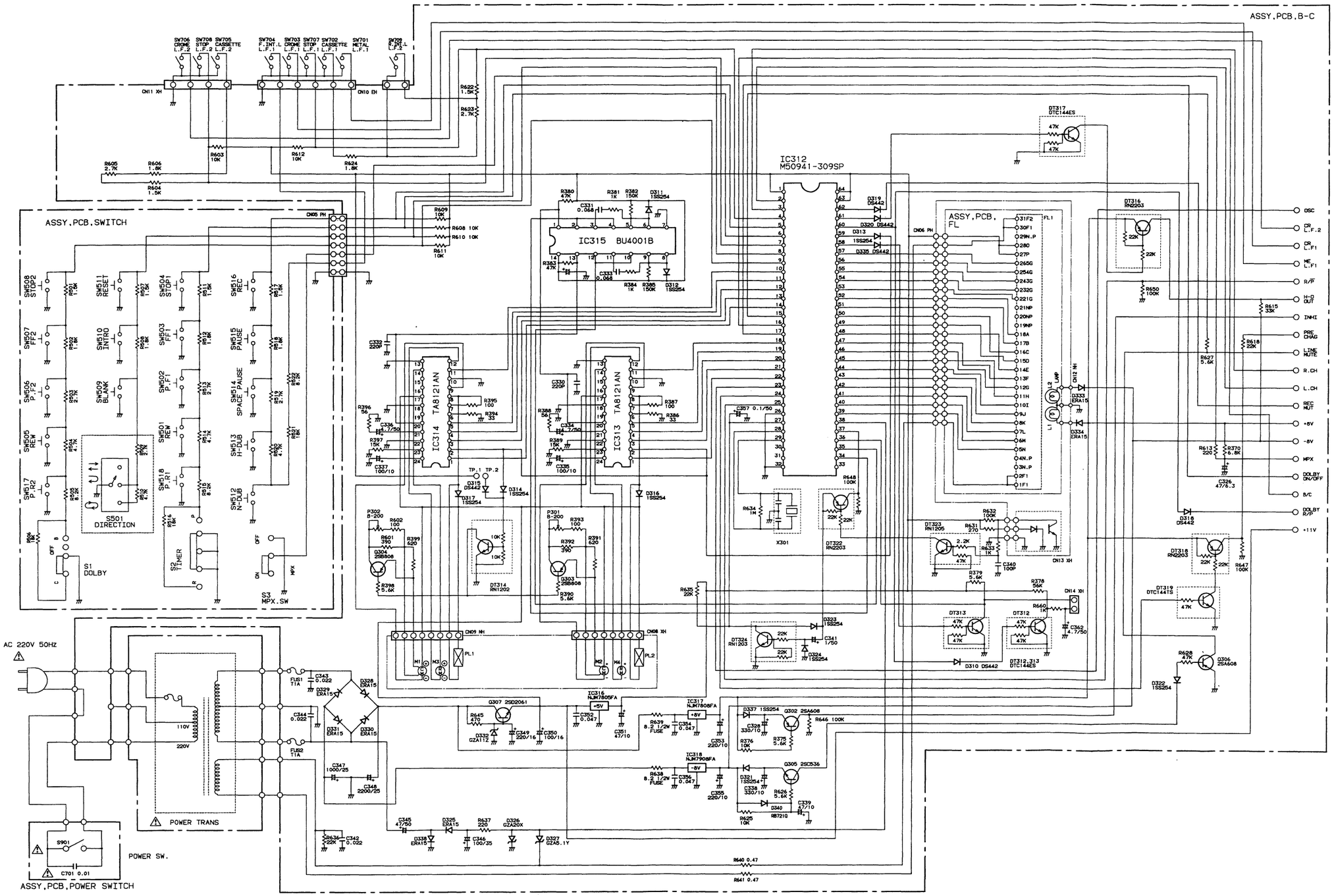
SCHEMATIC DIAGRAM (1)



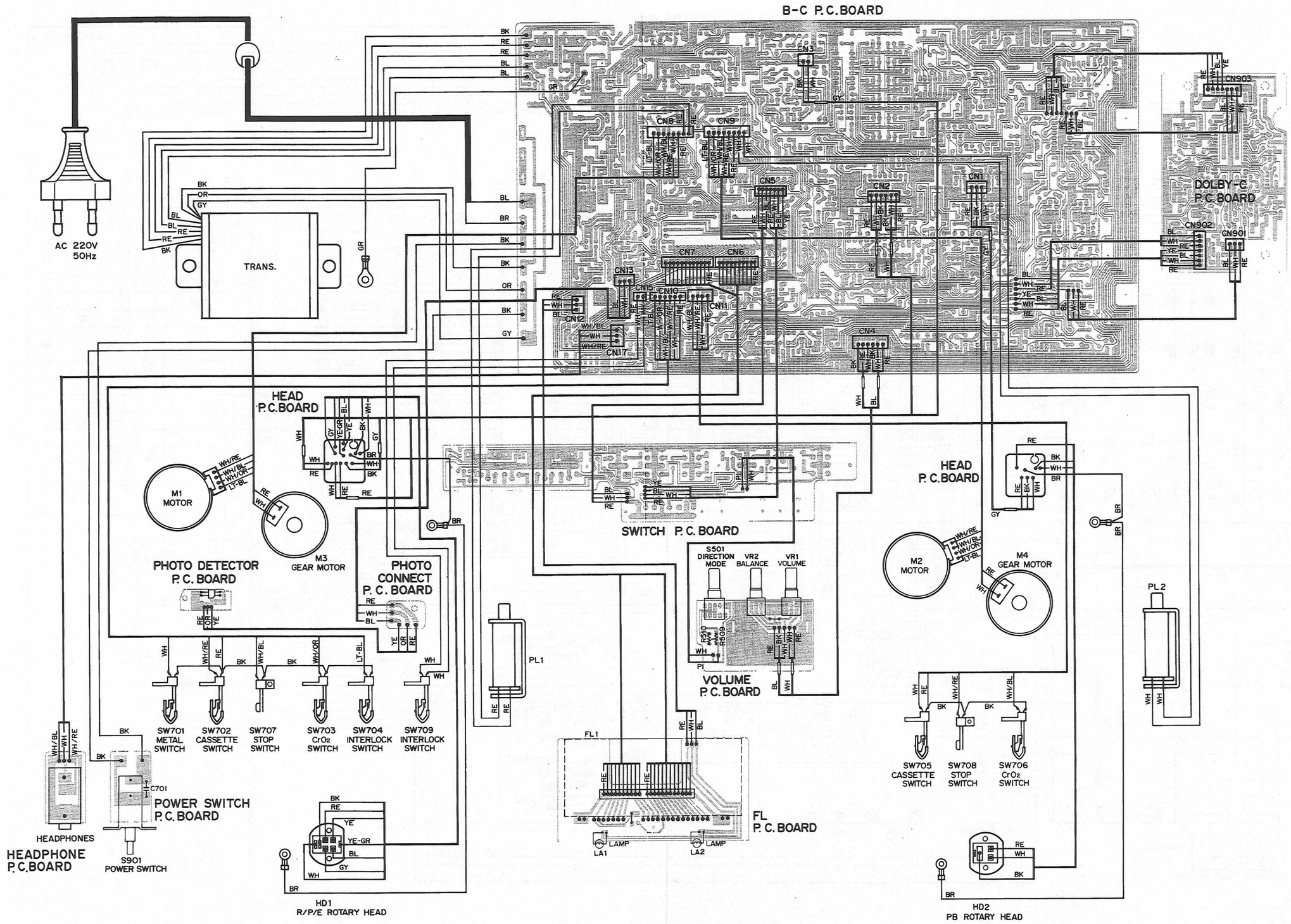
B-C P.C.BOARD
(BOTTOM VIEW)



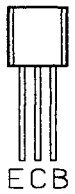
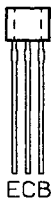
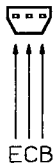
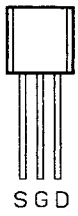
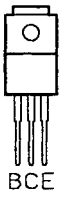
SCHEMATIC DIAGRAM (2)



WIRING DIAGRAM



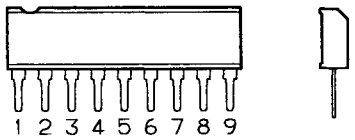
IC & TRANSISTOR LEAD IDENTIFICATION

TRANSISTOR	FRONT VIEW	BOTTOM VIEW	TRANSISTOR	FRONT VIEW	BOTTOM VIEW
2SA608 2SC3331 2SC3708 2SC536			DTC144ES DTC144TS RN1202 RN1203 RN1205 RN2203 RN2205 2SB808 2SC3860		
2SK246			2SD2061		

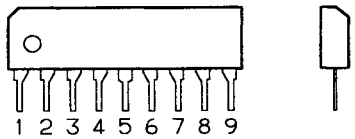
TERMINAL NAME

B → BASE
C → COLLECTOR
E → EMITTER
S → SOURCE
G → GATE
D → DRAIN

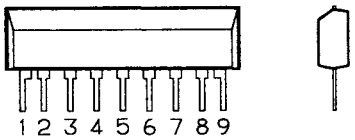
BA6138 FRONT/SIDE VIEWS



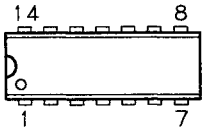
NJM2068S-D FRONT/SIDE VIEWS



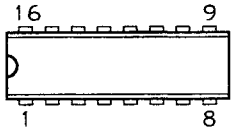
UPC1330HA FRONT/SIDE VIEWS



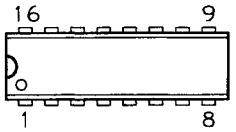
MC14066BCP TOP VIEW



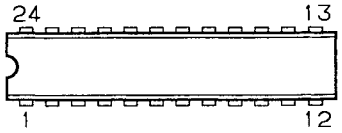
BU4001B TOP VIEW
BU4051B TOP VIEW
BU4053B TOP VIEW



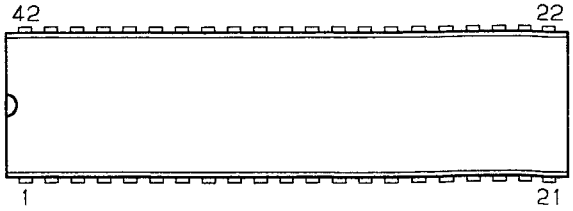
CXA1198AP TOP VIEW



TA8121AN TOP VIEW

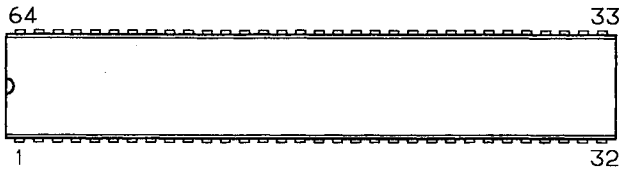


CX20187 TOP VIEW

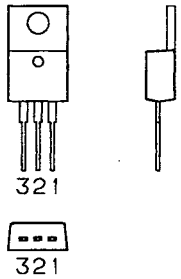


IC & TRANSISTOR LEAD IDENTIFICATION (Continued)

M50941-309SP TOP VIEW

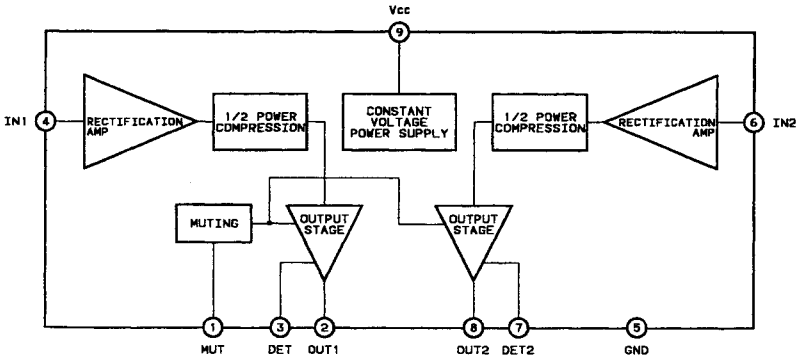


NJM7805FA FRONT/SIDE VIEWS
NJM7808FA FRONT/SIDE VIEWS
NJM7908FA FRONT/SIDE VIEWS

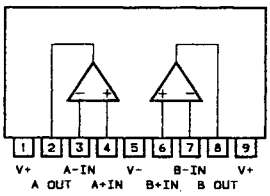


IC BLOCK DIAGRAM

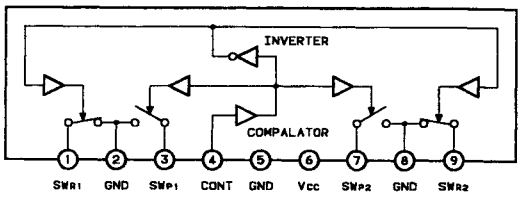
BA6138 BLOCK DIAGRAM



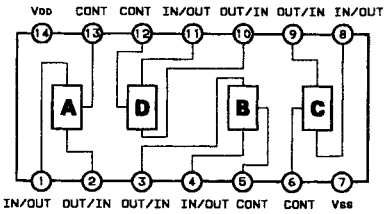
NJM2068S-D BLOCK DIAGRAM



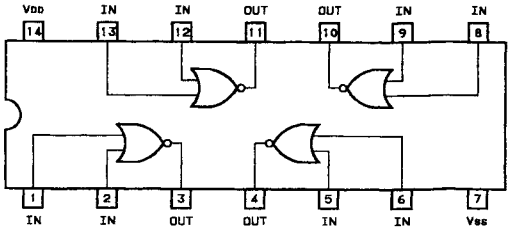
UPC1330HA BLOCK DIAGRAM



MC14066BCP BLOCK DIAGRAM

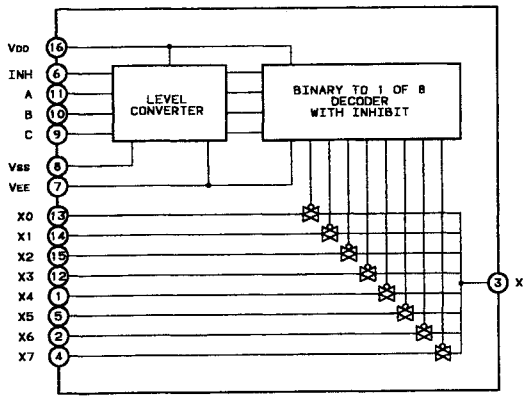


BU4001B BLOCK DIAGRAM

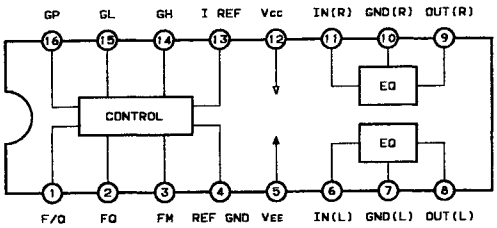


IC BLOCK DIAGRAM (Continued)

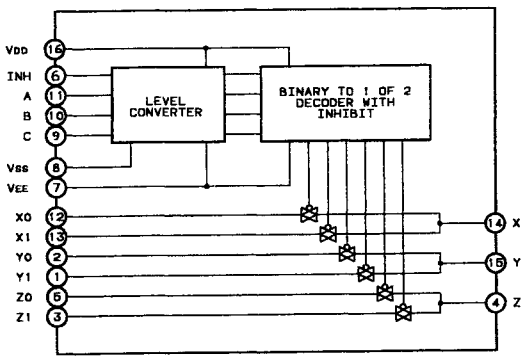
BU4051B BLOCK DIAGRAM



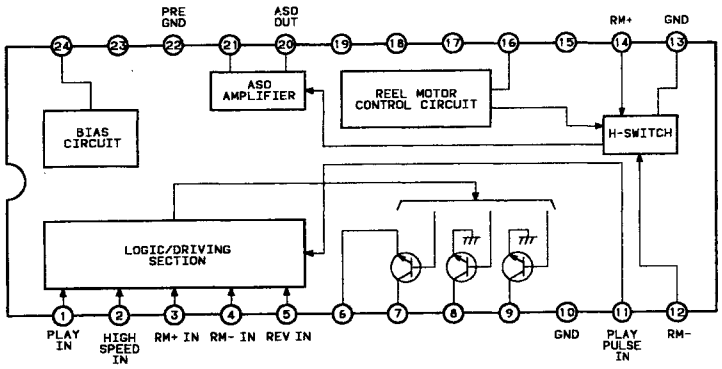
CXA1198AP BLOCK DIAGRAM



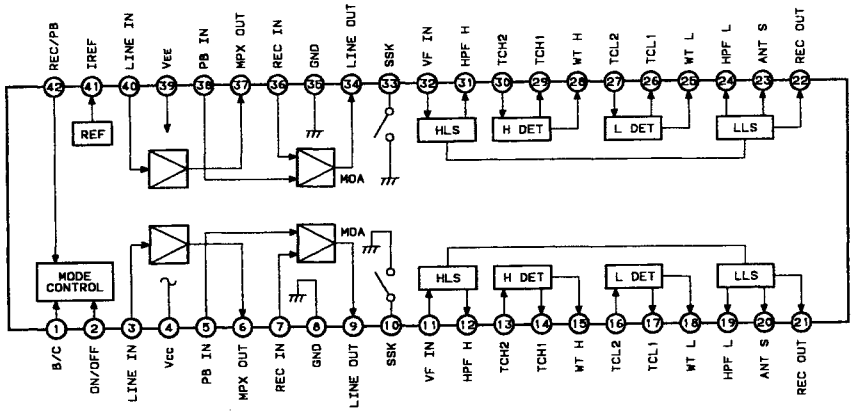
BU4053B BLOCK DIAGRAM



TA8121AN BLOCK DIAGRAM

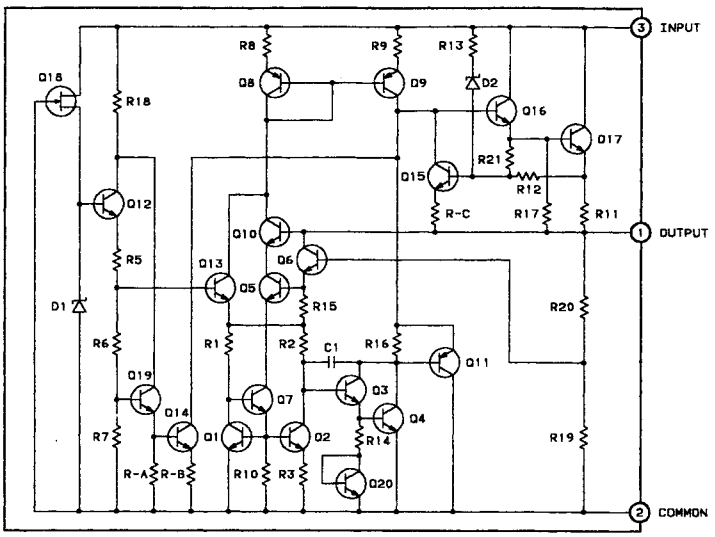


CX20187 BLOCK DIAGRAM

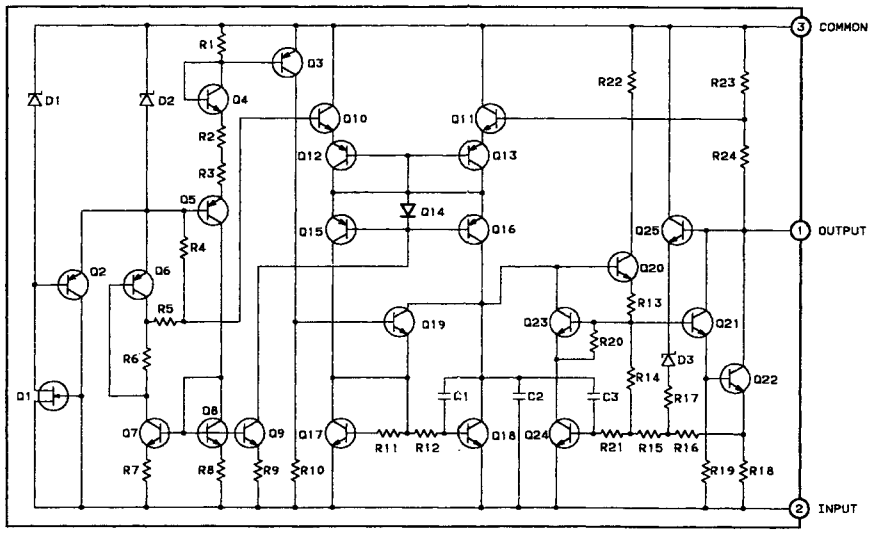


IC BLOCK DIAGRAM (Continued)

NJM7805FA BLOCK DIAGRAM
NJM7808FA BLOCK DIAGRAM



NJM7908FA BLOCK DIAGRAM



April/'90/1,200/H
Printed by: Schaltungsdienst Lange, Berlin (GERMANY)

SANYO FISHER Vertriebs GmbH
Stahlgruberring 4
8000 München 82
Tel: 089/420 45-0
Tlx: 524033